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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,376	10/30/2003	Christopher E. Schafer	993819-8	7890
7590	03/23/2006		EXAMINER	
G. Brian Pingel Brown, Winick, et al Suite 277 Regency West 5, 4500 Westown Parkway West Des Moines, IA 50266			PRICE, CRAIG JAMES	
			ART UNIT	PAPER NUMBER
			3753	
DATE MAILED: 03/23/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/697,376	SCHAFFER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Craig Price	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 1/3/2006.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/30/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Examiner notes that claim 8 is amended to include the limitation as to how the upper portion is adjustable and the objection is removed.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5,7-10,12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Galetschky (US 1,813,285).

Regarding claims 1 and 10, Galetschky discloses an apparatus for retaining fluid in a liquid delivery tube (col.1, ll.1-9) comprising of, a lower portion (1) having a ball valve (9) that permits only unidirectional flow of fluids and includes a valve chamber (internal to 1) for housing a ball and having an inlet end (near 3) and an outlet end (near 11) being spaced apart sufficiently so that the ball is longitudinally, reciprocally movable within the chamber from a closed position at the inlet end of the chamber to an open position at the outlet end of the chamber, and an upper tubular portion (7) that has an

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outside diameter that is tapered so that it can be inserted into a liquid delivery tube (8)(the upper tubular portion of 7 is tapered, inward relative to the ball, or tapers away from the ball, and is configured so that it can be inserted into a straw, a straw could go over this tapered upper portion, the claim only states that it can be inserted and does not positively recite the limitation), the tubular portion having an elongated, tapered passageway that communicates with the outlet end of the valve chamber to convey fluid from the chamber to the tube.

Regarding claim 2, Galetschky shows in Figure 2, at least one interior rib (11) extends inward from an inside upper portion of the outlet of the valve chamber so that the ball cannot significantly obstruct the flow of fluids through the outlet of the valve chamber.

Regarding claim 3, Galetschky shows in Figure 2, the inside upper portion of the valve chamber includes a plurality of the interior ribs (11) that are circumferentially spaced apart.

Regarding claim 4, Galetschky shows the plurality of the interior ribs are longitudinally aligned, as shown in Figure 2.

Regarding claim 5, Galetschky depicts the valve chamber inlet end includes a valve seat (2) (the figure 3, shows the mating surface of the valve seat to have a taper, a section line runs nearly parallel with the tapered valve seat, the valve seat is the inner corner between 3 and the perpendicular surface to 3, there must either be a radius or chamfer on this corner, since a feathered-edge sharp corner is not depicted, therefore the corner valve seat surface is tapered inwardly to some extent) having sidewalls that

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taper inwardly such that the diameter of the valve seat is reduced toward the valve chamber inlet end to prevent the ball from becoming stuck therein, as shown in Figure 3.

Regarding claim 7, Galetschky shows the diameter of the passageway of the upper tubular portion tapers inwardly (7) (Placing a straw over the outside maximum diameter of the upper tubular portion would yield an inner diameters such as the tapered upper portion of 7 as well as the change in diameter of 6 which would restrict flow) so that the flow of fluid through the upper tubular portion is restricted as seen in Figures 2 and 3.

Regarding claim 8, Galetschky depicts that the diameter (7) of the upper passageway of the upper tubular portion is adjustable by trimming to increase the flow of fluid through the apparatus (the upper portion is configured to be trimmed so that the tapered portion of 7 would no longer exist, this would nearly reduce the inner eddy currents caused by the taper, the inner eddy currents would exists at the outlet of the tapered portion, in the case a straw was inserted over the external tapered portion of 7, thereby increasing flow through the passageway).

Regarding claim 9, Galetschky shows the upper tubular portion can be inserted into the bottom of the liquid delivery tube, (the upper portion is configured to be inserted into the inner diameter of a straw, where the exterior of the straw would go over the upper tubular tapered portion, the limitation is not positively recited).

Regarding claim 12, Galetschky discloses the spacing between the inlet end and the outlet end of the valve chamber is of a sufficient length so that as the ball moves

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from the open position to the closed position, a portion of the liquid in the delivery tube is permitted to pass back through the apparatus to reduce the amount of liquid in the tube (col. 2, ll. 63-72).

Regarding claim 13, Galetschky shows liquid delivery tube is in the form of a straw (8) having an upper end for delivering fluid to the mouth of a user and a bottom end to which the apparatus is attached, as seen in Figure 1.

Claims 1-5,7-10,12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tatum (US 342,478).

Regarding claims 1 and 10, Tatum discloses an apparatus for retaining fluid in a liquid delivery tube (A) comprising of, a lower portion (B, D) having a ball valve (C) that permits only unidirectional flow of fluids and includes a valve chamber for housing a ball and having an inlet end (b) and an outlet end (opposite of b) being spaced apart sufficiently so that the ball is longitudinally, reciprocally movable within the chamber from a closed position at the inlet end of the chamber to an open position at the outlet end of the chamber, and an upper tubular portion (exterior upper portion of B) that has an outside diameter that is tapered so that it can be inserted into a liquid delivery tube, the tubular portion having an elongated, tapered passageway that communicates with the outlet end of the valve chamber to convey fluid from the chamber to the tube, as shown in Figure 1.

Regarding claim 2, Tatum shows in Figure 2, at least one interior rib (a) extends inward from an inside upper portion of the outlet of the valve chamber so that the ball cannot significantly obstruct the flow of fluids through the outlet of the valve chamber.

Regarding claim 3, Tatum shows in Figure 2, the inside upper portion of the valve chamber includes a plurality of the interior ribs (a) that are circumferentially spaced apart.

Regarding claim 4, Tatum shows the plurality of the interior ribs are longitudinally aligned, as shown in Figure 2.

Regarding claim 5, Tatum depicts the valve chamber inlet end includes a valve seat (the corner interface of ball C and D, figure 1, shows the mating surface of the valve seat to have a taper, a section line runs nearly parallel with the tapered valve seat, since a feathered-edge sharp corner is not depicted, than the corner valve seat surface is tapered inwardly to some extent) having sidewalls that taper inwardly such that the diameter of the valve seat is reduced toward the valve chamber inlet end to prevent the ball from becoming stuck therein, as shown in Figure 1.

Regarding claim 7, Tatum shows the diameter of the passageway of the upper tubular portion tapers inwardly (through the area where the interior ribs, a, are located) so that the flow of fluid through the upper tubular portion is restricted as seen in Figure 1.

Regarding claim 8, Tatum depicts that the diameter of the upper passageway of the upper tubular portion (through the area where the interior ribs, a, are located) is adjustable by trimming to increase the flow of fluid through the apparatus (the upper portion is configured to be trimmed on a line such as one directly above the reference character, a, which would increase the inner diameter and still maintain the external tapered surface to place a tube over).

Regarding claim 9, Tatum shows the upper tubular portion can be inserted into the bottom of the liquid delivery tube.

Regarding claim 12, Tatum discloses the spacing between the inlet end and the outlet end of the valve chamber is of a sufficient length so that as the ball moves from the open position to the closed position, a portion of the liquid in the delivery tube is permitted to pass back through the apparatus to reduce the amount of liquid in the tube, as shown in Figure 1.

Regarding claim 13, Tatum shows liquid delivery tube is in the form of a straw (8) having an upper end for delivering fluid to the mouth of a user and a bottom end to which the apparatus is attached, as seen in Figure 1 (col. 2, ll. 47-54).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.



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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tatum (US 342,478) in view of Woodward (US 4,070,237).

Tatum has taught all of the features of the claimed invention except that, the valve seat sidewalls tapering inwardly at an angle less than 20.76 but greater than 14.76 degrees.

Woodward teaches the use of a ball check valve used with a fluid, having a "50 degree inclusive angle, i.e. 25 degrees per side, for the tapered seat 16, (col. 5, ll. 3-6).

At the time the invention was made, it would have been an obvious to optimize the tapered seat to a person of ordinary skill in the art to have the inwardly tapered sidewalls of Tatum to be at an angle less than 20.76 but greater than 14.76 degrees. Since the prior art recognizes the similarly tapered seat range, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized an angle less than 20.76 but greater than 14.76 degrees, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see MPEP 2144.05).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tatum (US 342,478) in view of Woodward (US 4,070,237).

Regarding claim 11, Tatum depicts an apparatus for retaining fluid in a liquid delivery tube (col.2, ll. 47-54) comprising of, a lower portion (B, D) having a ball valve (C) that permits only unidirectional flow of fluids and includes a valve chamber for

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housing a ball and having an inlet end (b) and an outlet end (opposite of b) being spaced apart sufficiently so that the ball is longitudinally, reciprocally movable within the chamber from a closed position at the inlet end of the chamber to an open position at the outlet end of the chamber, and an upper tubular portion (exterior upper portion of B) that has an outside diameter that is tapered so that it can be inserted into a liquid delivery tube, the tubular portion having an elongated, tapered passageway that communicates with the outlet end of the valve chamber to convey fluid from the chamber to the tube, as shown in figure 1.

Tatum has taught all of the features of the claimed invention except that, and that a valve seat having sidewalls that taper inwardly at an angle less than generally 21 degrees but greater than generally 15 degrees to prevent the ball from becoming stuck therein.

Wood ward teaches the use of a ball check valve used with a fluid, having a "50 degree inclusive angle, i.e. 25 degrees per side, for the tapered seat 16, (col. 5, ll. 3-6).

At the time the invention was made, it would have been an obvious to optimize the tapered seat to a person of ordinary skill in the art to have the inwardly tapered sidewalls of Tatum to be at an angle less than generally 21 degrees but greater than generally 15 degrees. Since the prior art recognizes the similarly tapered seat range, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized an angle less than generally 21 degrees but greater than generally 15 degrees, since it has been held that where the general conditions of a

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claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see MPEP 2144.05).

### ***Response to Arguments***

Applicant's arguments filed 3 January 2006 have been fully considered but they are not persuasive.

In regards to your argument for claims 1 and 9, "an upper tubular portion that has an outside diameter so that it can be inserted into a liquid delivery tube", does not positively recite the limitation and states that it can be inserted, the upper portion is tapered and can be inserted into a tube in which the top upper portion would fit into.

In regard to your argument for claim 7, the taper is shown to go inward into the outlet portion of the upper tubular portion.

In regard to your argument for claim 8, with a tube over the maximum diameter of the top upper portion, eddy currents would exist at the outlet of the upper tapered portion and the intersection of the inner wall of the outer tube, by cutting this taper off and changing the size of the outer tube to snugly fit the upper portion no longer tapered, would substantially reduce the effects of eddy currents at this junction and thereby increase flow rate.

In regard to your argument for claims 5 and 10, Galetschky's figure 3, shows the mating surface of the valve seat to have a taper, a section line runs nearly parallel with the tapered valve seat, the valve seat is the inner corner between 3 and the perpendicular surface to 3, there must either be a radius or chamfer on this corner,

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since a feathered-edge sharp corner is not depicted, therefore the corner valve seat surface is tapered inwardly to some extent.

Applicant's arguments, see pages 3 and 4, filed 1/3/2006, with respect to the rejection(s) of claim(s) 6 and 11 under 35 U.S.C. 103 (b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Tatum (US 342,478) in view of Woodward (US 4,070,237). The Woodward reference indicates the use of a ball used with a valve seat having an inclusive angle of 50 degrees, which is 25 degrees per side of taper, this range is similar to the range of Applicants, and it would have been obvious to optimize the range for the performance of the valve.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig Price whose telephone number is (571) 272-2712. The examiner can normally be reached on 8AM - 5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on (571) 272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

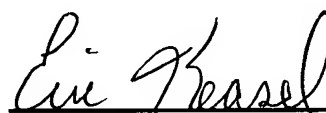
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CP



17 March 2006



Eric Keasel  
Primary Examiner  
Art Unit 3754